REMARKS/ARGUMENTS

This is in response to the Office Action dated 12 September 2003. Claims 1, 7, 11-12, 16, 18, 20, and 22 have been amended and no claims have been cancelled. Thus claims 1-22 are pending. In view of the claim amendments and arguments set forth below, all of the claims are in condition for allowance.

Amendments to the Specification

In the amended pages 1 and 2, the title has been amended to become more descriptive and "it's" has been corrected to "its" on page 2 lines 2 and 29.

Amendments to the Claims

In the Office Action, claims 1-10, 12, 13, 16, 18 and 20 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the amended claims, grammatical errors have been corrected and amendments have been made in order to increase the clarity of the claims in accordance with the Examiner's suggestions in the Office Action. Furthermore, the wording "in said frames" has been amended to "in each frame of said frames" in claims 1, 11 and 22; and the wording "said predefined time slot or set of time slots being the same for all nodes connected to said link" has been added to claim 11. Hence, it is now clearer from the claims that the same time slot or set of time slot in the same frame is used by more than one node connected to the link.

It is respectfully submitted that the claims as amended fulfill the requirements under U.S.C. §112, second paragraph. It is respectfully requested that the Examiner withdraw the rejection to claims 1-10, 12, 13, 16, 18 and 20 under 35 U.S.C. §112, second paragraph.

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Overview

Claim 1 claims a method for establishing control signaling between nodes connected to the same communication link. The link carries a bitstream that is divided into frames. Each frame is in turn divided into time slots and the time slot is allocatable to form circuit-switched channels. According to the method all nodes connected to said link use, at link start-up, the same predefined time slot or set of time slots in each frame of said frames to receive control signaling messages from and transmit control signaling messages to nodes connected to said link. Furthermore, the nodes establish, using control signaling via said predefined time slot or set of time slots, respective control channels, defined by respective time slots or sets of time slots in said frames, reserved for transmission of control signaling messages from respective ones of said nodes. Each respective one of said nodes use, when having been reserved such a respective control channel, its respective control channel for sending control signaling messages to other nodes connected to said link, the other nodes on the link accessing this respective control channel only for receiving control signaling messages.

Claim 11 claims a method for establishing control signaling between nodes connected to the same communication link. The link carries a bitstream that is divided into frames, each frame is in turn divided into time slots, and the time slot is allocatable to define circuit-switched channels. The method is performed by a subject node of the nodes and according to the method the subject node uses, at link start-up, a predefined time slot or set of time slots in each frame of said frames to receive control signaling messages from and to transmit control signaling messages to other nodes connected to said link. The predefined time slot or set of time slots are the same for all nodes connected to said link. The subject node further establishes, using control signaling via the predefined time slot or set of time slots, a control channel defined by another time slot or set of time slots in the frames. The control channel is to be used exclusively by the subject node for transmission of control signaling messages to other nodes connected to the link. When the control channel has been established, the control channel is used to transmit control signaling messages to other nodes connected to the link.

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Claim 22 claims a method for establishing control signaling between nodes connected to the same communication link. The link carries a bitstream that is divided into frames, each frame is in turn divided into time slots, and the time slot be allocatable to define circuit-

switched channels. According to the method the nodes use, at link start-up, predefined point-to-point channels, which are all defined by the same predefined time slot or set of time slots in each frame of said frames. The predefined point-to-point channels each interconnect neighbor nodes on the link, and all together form a packet switched control signaling channel for control signaling. The nodes establish, using control signaling via said packet switched control signaling channel, respective circuit switched point-to-multipoint control signaling channels defined by respective time slots or set of time slots on said frames to be used for transmission of control signaling messages from respective exclusive ones of the nodes.

The methods of claim 1, 11 and 22 all include the use of a predefined time slot or set of time slots in each of the frames to transmit control signaling messages at link start-up, which predefined time slot or set of time slots are the same for all nodes on a link. Furthermore, the methods of claim 1, 11 and 22 all include the use of the predefined time slot or set of time slots in each of the frames to establish a control channel defined by a time slot or set of time slots exclusive to a node on the link in terms of transmission of control signaling messages.

By means of the above features, the methods of the invention overcomes the disadvantage of prior art that, in order for the nodes to be able to start communicating with each other to, for example, set up payload traffic channels, each node on a link typically has to know, for each other node on that link, which time slots in the recurring frame on that link that other node uses as its control channel. This means that either the time slot location of such channels must be in some way be predefined or the operator must manually, or by use of an overlying management system, configure the channels as found fit on the subject link at link set-up, thereby either limiting network configuration freedom or adding undesired configuration steps during link set-up.

Through the methods of the inventions all nodes on a link can, immediately at link start-up, start communicating with each other on the link using a well know, shared time slot or set of time slots, and may thus use this shared signaling slot (or set of slots) for any kind of control signaling, for example to manage any type of channels, especially including setting up respective control channels, each dedicated for use by a respective node. Thus, the invention provides, as compared to prior art, a simplified scheme for configuring a link at link-start up,

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requiring less operator interaction without imposing undesirable requirements on the use of predefined configurations.

Response to Rejection Under 35 U.S.C. §102(b)

Claims 1-3, 6-14 and 17-22 stand rejected under 35 U.S.C. §102(b) as being anticipated by Lindgren et al (WO 97/36401), hereinafter referred to as Lindgren.

Lindgren relates to dynamic signaling and discloses methods for dynamically allocating control slots to a node and to convert a control slot to a data slot and vice versa (abstract).

In one specific example, Lindgren discloses a method including the allocation of control slots on a link which carries a bitstream that is divided into cycles, which in turn are divided into time slots (page 6 lines 3-9). In the example each node has write permission to at least one control slot. The write access to control slots is disclosed as exclusive (page 6 lines 36 and 37), i.e. no other node may transmit control signaling messages in a control slot which is assigned to the node. Furthermore, each node may be assigned a predefined number of control slots, called static control slots, at start-up (page 7 lines 6 to 9). In addition to the static control slots of a node, further control slots may be allocated to a node and then deallocated again by means of a conversion of data slots to control slots and vice versa. Such slots are called dynamic control slots (page 8 lines 4 to 11). Both the disclosed static control slot and the dynamic control slot are disclosed as exclusively assigned to a node in terms of write access.

Further, Lindgren also discloses the possibility of having less than one control slot for each node and each cycle. A number of frames, e.g. n frames, are organized into base frames, and each node has access to at least one control slot per base frame (page 9 lines 9 to 17). In this case different nodes use control slots with the same slot number in a cycle, but in different cycles in a base frame. Hence, a control slot in this case is still disclosed as exclusive to a node in terms of write access. The slot(s) within the base frame assigned to a node is called its basic signaling channel (BSC) (page 9 lines 20 to 25).

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Lindgren also discloses the use of a virtual network concept. A node creates or joins a virtual network by signaling to the nodes with which it wants to communicate, preferably by using the basic control signaling channel (BSC). The control slot specifies which data slots will be used for signaling within the virtual network (page 10 line 36 to page 11 line 10). As the BSC of a node in Lindgren is disclosed as time slots for which a node has exclusive write access, a node creating or joining a virtual network disclosed in Lindgren does this using time slots which are exclusive to the node in terms of write access.

Lindgren does not explicitly disclose the use of a predefined time slot or set of time slots in each of the frames to transmit control signaling messages at link start-up, which predefined time slot or set of time slots are the same for all nodes on a link, with the subsequent use of such predefined time slot or set of time slots in each of the frames to establish a control channel defined by a time slot or set of time slots exclusive to a node on the link in terms of transmission of control signaling messages.

Since, Lindgren does not disclose the above features claimed in any of claims 1, 11 or 22, it is respectfully requested that the Examiner withdraw the rejections to claims 1, 11 and 22 under 35 U.S.C. §102(b).

Claims 2, 3, 6-10, 12-14 and 17-21 depend from claims 1 and 11. It is respectfully submitted that claims 2, 3, 6-10, 12-14 and 17-21 is not anticipated by Lindgren for at least the reasons described above. Hence, it is respectfully requested that the Examiner withdraw the rejections to claims 2, 3, 6-10, 12-14 and 17-21 under 35 U.S.C. §102(b).

Response to Rejection Under 35 U.S.C. §103(a)

Claims 4, 5, 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lindgren.

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Claims 4, 5, 15 and 16 depend from claims 1 and 11, and accordingly are in condition for allowance for at least the reason of dependency. Since, Lindgren does not disclose the above features claimed in claim 1 and 11, it is respectfully submitted that Lindgren does not make obvious Applicants' invention according to claims 4, 5, 15 or 16. Hence, it is

respectfully requested that the Examiner withdraw the rejections to claims 4, 5, 15 and 16 under 35 U.S.C. §103(a).

Conclusion

In light of the foregoing, pending claims 1-22 are in condition for allowance, which action is respectfully requested. Should the Examiner have questions or otherwise desire to discuss the case, please contact the undersigned at 408-392-9250.

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